

CLAIMS

WHAT IS CLAIMED IS:

1. A compressor comprising:

a motor for driving a compressor element;

a protection device for said motor, said protection device being actuated if a predetermined temperature is exceeded at said motor;

a housing for enclosing said motor, said housing defining a housing chamber housing said motor;

a compression chamber for compressing a refrigerant, and said refrigerant passing through said housing chamber to said compression chamber, such that said refrigerant cools said motor; and

a vent for selectively communicating a fluid from said compression chamber to said housing chamber and if conditions indicate that a loss of charge has occurred in a system associated with said compressor, said vent allowing gas at an elevated temperature to move into said housing chamber and contact said motor, and actuate said protection device.

2. A compressor as recited in Claim 1, wherein said compressor is a scroll compressor.

3. A compressor as recited in Claim 2, wherein said vent is placed in a non-orbiting scroll of said scroll compressor.

4. As recited in Claim 1, wherein said compression chamber is a discharge port.

5. A scroll compressor as recited in Claim 4, wherein a valve is moveable dependent on the pressure difference between a suction tap and a tap to a compression chamber prior to discharge to selectively communicate said discharge pressure tap to said housing chamber.

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A scroll compressor comprising:

a housing defining a housing chamber;

an electric motor received in said housing chamber, said electric motor being provided with a protection device which is actuated when said motor reaches a predetermined temperature to stop rotation of said motor;

a supply of suction fluid communicating with said housing chamber such that said suction fluid cools said motor;

a first scroll member having a base and a generally spiral wrap extending from said base and a second scroll member having a base and a generally spiral wrap extending from said base, said wraps of said first and second scroll members interfitting to define compression chambers;

said motor driving said first scroll member to orbit relative to said second scroll member; and

a vent for selectively venting gas from at least one of said compression chambers to said housing chamber in the event that conditions indicate there has been a loss of charge in a system associated with said compressor.

7. A scroll compressor as recited in Claim 6, wherein said vent is mounted in said base of said second scroll member.

8. A scroll compressor as recited in Claim 7, wherein a tap from said at least one compression chamber selectively passes to said housing chamber, said tap being selectively closed by a valve, said valve being held at a position allowing flow from said tap to said housing chamber, and said valve moving to a position blocking flow from said tap to said housing chamber if a pressure differential between the pressure in said compression chamber and said housing chamber exceeds a predetermined differential.

9. A scroll compressor as recited in Claim 8; wherein a spring biases said valve toward a stop surface and to said position allowing flow from said tap to said housing chamber, and the pressure in said compression chamber selectively overcoming said spring force to move said valve to a position blocking flow from said tap to said housing chamber.

10. A scroll compressor as recited in Claim 8, wherein a magnetic force holds said valve at a position allowing flow from said tap to said housing chamber, and the pressure in said compression chamber selectively overcoming said magnetic force and moving said valve to a position blocking flow from said tap to said housing chamber.

11. A scroll compressor as recited in Claim 8, wherein a temperature sensitive element is associated with said valve, and holds said valve at a position blocking flow from said tap to said housing chamber until a predetermined temperature is exceeded at said element, said element being of a bi-metal composition which snaps to a second position once a predetermined temperature has been exceeded, said

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valve being capable of moving to said position allowing flow when said bi-metal element has moved to said second position.

12. A scroll compressor as recited in Claim 8, wherein a temperature sensitive element is associated with said valve and holds said valve at a position blocking
5 flow from said tap to said housing chamber until a predetermined temperature is exceeded at said element.

13. A scroll compressor as recited in Claim 8, wherein said valve includes a spool valve and a closure valve, said pressure in said compression chamber communicating to a chamber acting on said closure valve and causing said closure
10 valve to be biased toward said spool valve, an opposed side of said spool valve being communicated to said housing chamber pressure, and said closure valve being spring-biased to allow flow from said compression chamber to said opposed side of said spool valve, said compression chamber force biasing said closure valve to a
15 first position blocking such flow unless the difference in pressure between said compression chamber and said housing chamber is less than a predetermined difference.

14. A scroll compressor as recited in Claim 13, wherein said spool valve selectively closes a tap to discharge pressure when held in said first position, but allows flow from both said compression chamber and a discharge pressure tap when
20 moved away from said first position.

15. A scroll compressor as recited in Claim 13, wherein said spool valve selectively closes a tap to discharge pressure when held in said first position but

allows flow from said discharge pressure tap when moved away from said first position.

16. A scroll compressor as recited in Claim 6, wherein said compression chamber is a discharge port.

5 17. A scroll compressor as recited in Claim 16, wherein a valve is moveable dependent on the pressure difference between a suction tap and a tap to a compression chamber prior to discharge to selectively communicate said discharge pressure tap to said housing chamber.

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a vent mounted in said base of said second scroll member, said vent including a valve biased towards a position selectively venting gas from at least one of said compression chambers and said valve being moved to a position blocking venting of gas if conditions indicate that the compressor is operating properly.

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19. A scroll compressor comprising:
a housing defining a housing chamber;
a first scroll member having a base and a generally spiral wrap
extending from said base and a second scroll member having a base and a
generally spiral wrap extending from said base, said wraps of said first and
second scroll members interfitting to define compression chambers; and
a vent mounted in said base of said second scroll member, said vent
including a valve biased towards a position selectively venting gas from at
least one of said compression chambers and said valve being moved to a
position blocking venting of gas if conditions indicate that the compressor is
operating properly.

20. A scroll compressor as recited in claim 19, wherein said vented gas actuates
a motor protection device of an electric motor which drives said first scroll member.

21. A scroll compressor as recited in claim 19, wherein said valve has a first
face which is exposed to suction pressure and a second face exposed to a pressure
within said at least one compression chamber, a bias member biasing said valve to
a position allowing venting, and against a pressure from said at least one said
compression chamber.